

## **CLAIMS**

1. A system for use in controlling a hydrocarbon production well, comprising:
  - a) computing means at a control location remote from a well tree of the well;
  - b) well tree means comprising:
    - i) processing means for applying control signals to and receiving signals from devices of the well tree; and
    - ii) means for receiving further signals associated with the operation of the well;and
  - c) a bi-directional communication link between said computing means and said well tree means, wherein the well tree means further comprises:
    - iii) a communications router coupled with said processing means and said receiving means, for multiplexing said signals from devices at the well head and said further signals on to said bi-directional link.
2. The system according to claim 1, wherein said bi-directional link comprises a fibre optics link.
3. The system according to claim 1, wherein there is a plurality of such well tree means at respective well trees, there being distribution means between said bi-directional link and the well tree means for distributing control signals to said well tree means and receiving multiplexed signals from said well tree means.
4. The system according to claim 1, wherein said signals from devices at the well head and said further signals have different protocols and different data speeds.
5. The system according to claim 1, wherein said further signals include video signals.
6. The system according to claim 1, further comprising a first communication channel and a second communication channel for use if the first channel fails.

7. The system according to claim 1, further comprising a back-up communication arrangement between its computing means and the well tree means for use if the system fails.
8. The system according to claim 6, further comprising a back-up communication arrangement between the computing means of each channel and the well tree means for use if each of the channels fails.